MEDICAL EDUCATION (ORIGINAL ARTICLES)

RESIDENCY EDUCATIONAL CLIMATE IN A PAKISTANI POSTGRADUATE MEDICAL INSTITUTE

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ABSTRACT

Objective: To determine the postgraduate residents' perception of their educational environment.

Study Design: Descriptive cross-sectional study.

Place and Duration of Study: Armed Forces Post Graduate Medical Institute (AFPGMI) Rawalpindi, in October 2014. The postgraduate training (residency) is being imparted in two military teaching hospitals and nine armed forces clinical institutes affiliated with AFPGMI.

Material and Methods: Fifty-six residents enrolled with AFPGMI in various postgraduate training programs were included in this study. Twenty-nine residents were from medical and allied (general medicine, psychiatry, dermatology, rehabilitation medicine, military medicine) and twenty-seven from surgical and allied (general surgery, gynecology, ophthalmology, ENT, pathology, radiology) disciplines. An established instrument Dutch Residency Educational Climate Test (D-RECT) was administered to determine residents' perspective on their learning environment. The survey form of each resident was analyzed to determine overall perception of educational climate addition to detailed analyses of perceptions regarding supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relation between consultants, adaptation of work to residents' competence, role of consultants, formal education, role of specialty tutor/supervisor and patient sign-out. Descriptive and inferential statistics were applied on the data to draw interpretations using SPSS Version 20.0.

Results: Overall 64% of residents had positive perception of learning environment. Except 'feedback' that was perceived more negative (50%) than positive (32%), other elements perceived positively but having notable negative perception (mean score of less than 3.6 on Likert scale) included work adaptation to residents' competence (25%), coaching and assessment (23%), role of specialty tutor/supervisor (23%) and patients' sign-out (21%). Educational climate perception by residents in "medical and allied" versus "surgical and allied" disciplines did not reveal any statistically significant difference (p-value > 0.05).

Conclusion: The study highlights an overall positive learning climate at Armed Forces Post Graduate Medical Institute, but finds a need to provide regular structured feedback to residents during their training. To accomplish this end, periodic use of workplace based assessment tools is suggested.

Keywords: Educational climate, Post Graduate, Residency.

INTRODUCTION

Ensuring good patient care is the ultimate goal at all levels of medical education. However, medical teaching and training at postgraduate level has close integration to patient care and services[1]. Delivery of professional care to the patients directly depends on the quality of specialists being produced. With paradigm shift in medical education and worldwide move towards outcomes or competency-based model in the last decade, measures to realign postgraduate curricula in this direction have been taken up by College of Physicians and Surgeons of Pakistan (CPSP) as well[2]. In addition, relevant authorities and institutes have tried to address most of the observations made in an appraisal of postgraduate medical training in Pakistan by John Biggs under the aegis of Higher Education

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Commission (HEC)[3]. However, it is important to realize that successful delivery of postgraduate curriculum depends largely on the learning environment where residents undertake their training in various parts of the country. Growing number of media reports and published literature on lack of professionalism, medical malpractices and negligence of our specialists at various levels is alarming[4,5]. It is indicative of serious deficiencies in successful implementation of outcome-based curriculum in our postgraduate medical education. Achievement of all requisite outcomes is essentially linked to optimal learning climate, which is believed to influence residents' behavior and success[6,7]. Therefore, this leads us to question adequacy of educational environment available to the specialists training in Pakistan.

A few enquiries into postgraduate learning environment have been reported from Pakistan based on a self-designed questionnaire. And these too, have been limited in scope, as they have measured only a few components of work environment[8-10].

This study is important as by evaluating the residents' perceptions about learning environment quantitatively, we can distill the existing issues and problems in postgraduate learning climate. Subsequently, this is expected to inform and guide future course of action of postgraduate teachers and supervisors in order to improve learning, meeting outcomes and enhancing quality of trained specialists, ultimately leading to better patient care.

MATERIAL AND METHODS

This was a descriptive cross-sectional study carried out at Armed Forces Postgraduate Medical Institute (AFPGMI), Rawalpindi in October 2014. The sampling was done using non-probability convenience technique. Full-time residents enrolled through AFPGMI in various postgraduate programs from across "medical and allied" and "surgical and allied" specialties were invited for a 'common lecture' on "Learning Environment / Climate". An established instrument Dutch Residency Educational Climate Test (D-RECT) 11(English version) was used for quantifying learning climate. This 50-item questionnaire having 11 subscales was originally developed in Netherlands in Dutch language. A professional translator rendered it into English language, which was then verified by a British medical specialist for clarity. The eleven subscales of survey include supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relations between consultants, work adaptation to residents' competence, consultants' role, formal education, role of specialty tutor/supervisor and patient sign-out.

D-RECT questionnaire along with informed consent form was distributed in the last 30 minutes of the lecture to the participating residents.The residents were given assurance of confidentiality and taken through each of 50 items by the principal author. They were given 30 seconds to respond to each item. Each of the statement under all subscales was marked on a five-point Likert-scale, 5 for completely agreeing and 1 for complete disagreement.Fifty-six willing residents returned the filled form, with consent to participate in the study at the end of session. Twenty-nine residents were from medical and allied (general medicine, psychiatry, dermatology, rehabilitation medicine, military medicine) and twenty-seven from surgical and allied (general surgery, gynecology, ophthalmology, ENT, pathology, radiology) disciplines.

The survey form of each resident was analyzed and used to measure their perception of various elements of learning environment. Statistical analysis was done using SPSS v.20 statistical package (SPSS Inc, Chicago, IL). Frequencies, percentages along with means and Standard Deviations (SD) were determined.A mean score of less than 3.6 in any subscale was deemed notable negative perception. Comparison between two major specialties domains (medical and allied versus surgical and allied) in grading educational climate was also carried out using chi square test. This

quantitative analysis formed the basis of final results and interpretations.

RESULTS

A total of 64% residents had the opinion that educational climate at AFPGMI and affiliated hospitals, is positive. Most positively perceived element was peer collaboration (82%) followed by role of consultants in department (77%), teamwork (71%), formal education (70%) and professional relations between consultants (70%). A total of 66% of residents' perceived overall supervision of their training as positive. Most negatively perceived element was feedback (49%). Other noteworthy negatively perceived elements warranting attention for improvement were adaptation of work to residents' competence (25%), coaching, assessment and role of specialty tutor/supervisor (23%). Patients' sign-out was relatively weak element perceived negatively by 21%residents (table-1).

There was no statistically significant difference found in perception of various elements of learning environment by residents across 'medical and allied' and 'surgical and allied' groups (table-2).

Table-1: Quantitative analysis of eleven subscales of educational climate included in D-RECT (n=56).

S.No.	D-RECT Subscale	Positive perception	Equivocal	Negative perception	Mean	SD
1	Supervision	37 (66%)	10 (18%)	9 (16%)	3.75	1.49
2*	*Coaching and assessment	35(63%)	8 (14%)	13 (23%)	3.58	1.40
3**	**Feedback	19 (34%)	9 (16%)	28 (50%)	2.75	0.54
4	Teamwork	40 (71%)	6 (11%)	10 (18%)	3.80	1.68
5	Peer collaboration	46 (82%)	4 (7%)	6 (11%)	4.07	2.02
6	Professional relations between consultant	39 (70%)	4 (7%)	13 (23%)	3.69	1.64
7*	*Work is adapted to resident's competence	35 (63%)	7 (12%)	14 (25%)	3.56	1.40
8	Consultant's role	43 (77%)	6 (11%)	7 (12%)	3.96	1.84
9	Formal education	39 (70%)	6 (11%)	11 (19%)	3.75	1.63
10*	*Role of specialty tutor/ supervisor	31 (56%)	12 (21%)	13 (23%)	3.48	1.16
11*	*Patient sign out	31(56%)	13 (23%)	12 (21%)	3.50	1.15

** Subscale with gross negative perception. Mean score less than 3.0.
* Subscale with notable negative perception. Mean score less than 3.6.

DISCUSSION

Good patient care is the ultimate goal of medical education at all levels. The quality of specialist care essentially forms an important and integral part of patient care process. Hence, high quality training of specialists, i.e. postgraduate training cannot be over-emphasized. To achieve this end, educational climate is vital and affects teaching and learning of residents in postgraduate training institutes. Educational climate, by definition, is the learning environment as perceived by the student/resident[6]. Healthy and appropriate climate is essential for learning and affects choice of specialties by residents, their growth and attitudes[12].

We studied educational climate of the largest postgraduate medical institute of the country, i.e. Armed Forces Postgraduate Medical

Institute (AFPGMI) in order to find out existing issues and weaknesses in delivered curriculum for informing future course of action to meet desired outcomes for enhancing quality of trained specialists[13]. The postgraduate training under AFPGMI is imparted in two military teaching hospitals and nine affiliated armed forces clinical institutes.This study is expected to result in improved teaching and learning, increase in motivation among residents and a positive institutional profile[14]. Very few research studies reporting on postgraduate learning environment have been published from Pakistan[3,8,9,10]. They were allbased on a self-designed questionnaire andtheir scope was limited, as they had measured only a few components of work environment.

Various instruments like Dundee Ready Educational Environment Measure (DREEM)[15], Postgraduate Hospital Educational Environment Measure (PHEEM)[16] and Dutch-Residency Educational Climate Test (D-RECT)[11] have been employed internationally for evaluating the postgraduate learning environment. However, we chose D-RECT because it has been reported to possess explicit theoretical foundation and most robust psychometric qualities[11]. D-RECT, originally developed in Netherlands in Dutch language was translated into English language, which was then verified by a British medical

Table-2: Comparison of residents' perspective in context to specialty ('medical and allied' versus 'surgical and allied').

D-RECT Subscale	Perspective	Surgical & Allied (n=27)	Medicine & Allied (n=29)	*p*-value
		Frequency (%)	Frequency (%)	
Supervision	Positive	15 (55%)	22 (75%)	0.193
	Negative	7 (25%)	3 (10%)	
Coaching and Assessment	Positive	15 (55%)	19 (65%)	0.986
	Negative	8 (29%)	6 (20%)	
Feedback	Positive	10 (37%)	8 (27%)	0.858
	Negative	12 (44%)	13 (45%)	
Team work	Positive	17 (63%)	23 (79%)	0.417
	Negative	7 (26%)	3 (10%)	
Peer collaboration	Positive	21 (77%)	24 (82%)	0.180
	Negative	4 (14%)	3 (10%)	
Professional relations between consultant	Positive	17 (63%)	21 (72%)	0.804
	Negative	7 (26%)	6 (20%)	
Work is adapted to resident's competence	Positive	14 (52%)	20 (69%)	0.254
	Negative	9 (33%)	5 (17%)	
Consultant's role	Positive	19 (70%)	24 (82%)	0.353
	Negative	5 (18%)	2 (7%)	
Formal education	Positive	17 (63%)	22 (75%)	0.199
	Negative	9 (33%)	4 (14%)	
Role of specialty tutor/ supervisor	Positive	14 (52%)	17 (58%)	0.852
	Negative	6 (22%)	5 (17%)	
Patient sign-out	Positive	15 (55%)	16 (55%)	0.808
	Negative	7 (26%)	5 (17%)	

specialists for clarity. This contains 50-statements grouped into 11 subscales, each subscale representing important and salient aspect of postgraduate learning environment. The respondent residents' perceptions related to clinical supervision, coaching and assessment, feedback, teamwork, peer collaboration, professional relations between consultants, work adaptation to residents' competence, consultants' role, formal education, role of specialty tutor/supervisor and patient sign-out were collected and analyzed.

The majority of residents (64%) in our study had opinion that overall residency educational environment available to them is more positive, than negative. Detailed analyses of perceptions regarding various elements of learning environment is presented below:

a. *Residents' perspective on 'Supervision'*: Overall 66% residents perceived that clinical supervision provided to them was good, 16% had negative perception whereas 18% were undecided. More than 75% residents knew clearly about their supervisors and thought that supervision provided to them goes in line with level of their experience. However, 55% opined that they were not provided clear guidelines as to when they were supposed to request input from their supervisors. This being an important aspect in learning ought to be addressed through explicit guidelines.

b. *Residents' perspective on 'Coaching and assessment':* 63% residents perceived coaching and assessment provided to them as adequate, 14% remained equivocal whereas 23% had negative perspective. Detailed analysis revealed that more than 65% residents were satisfied with coaching provided by supervisors related to patient management, communication in difficult situations and assessment of clinical and soft skills. However, more than 45% residents perceived that their supervisors lack initiative to explain their actions to them and very rarely do observe them during history-taking. Being a core skill in outcomes-based curriculum, more coaching is deemed necessary to improve residents' competency in history taking.

c. *Residents' perceptions on provision of 'Feedback':* This was the most negatively perceived aspect of learning environment in our study. 50% residents felt unsatisfied with feedback provided to them during training. Although more than 60% perceived positively about verbal feedback provided by supervisors about their strengths and weaknesses but more than 65% thought that no structured feedback through use of forms like mini-CEX (mini-Clinical evaluation exercise) was provided to monitor progress of their training. Feedback is definitely a core component of formative assessment, central to learning and at 'the heart of medical education'[17] It promotes learning in three ways[18].

It informs trainees of their progress or lack there of;

It advises trainees regarding observed training needs and resources available to facilitate their learning; and

It motivates trainees to engage in appropriate learning activities.

A number of workplace based assessment methods have been developed, which are suitable for providing structured feedback based on observation of trainee performance[19]. Popular amongst these like mini-CEX and DOPS (Direct Observation of Procedural Skills) need to be used regularly to provide structured feedback to trainees.

d. *Residents' perspective on Teamwork and Peer collaboration:* A total of 71% and 82% residents perceived teamwork and peer collaboration to be positive respectively, and seemed satisfied with these important elements of learning environment. This reflected that team processes like communication and constructive debate[20] do exist adequately and trainees do not feel restricted in this respect despite innate organizational demands of Pakistan Armed forces.

e. *Residents' perception about workload and type; patient sign-out:* Though 63% residents perceived work was adapted to level of their competence, 25% thought it was not so. Almost 51% thought that they did not find time to learn new skills in their schedules. This perception might be due to very busy schedules of our clinical departments. Twenty one percent residents perceived patient sign-out (transfer of patient care responsibility during shift change) negatively. Although majority thought that this happens in safe climate, more than 30% perceived that it was not being used as a teaching opportunity. This might be due to rare presence of consultants during this process and needs improvement.

f. Residents' perspective on formal education/training: Seventy percent residents were satisfied with the adequacy, schedule, delivery and attendance of formal training and educational activities. This was a reflection of adequate provision of time for academics. The concept of "protected education time" (time away from work duties for education) needs to be incorporated in duty rosters of resident doctors and supervisors made aware of this[21]. This leads to optimization of learning experience and has positive effect on emotion and behavior through better management of workload commitment.

g. *Residents' perspective on role of specialty supervisor/tutor, consultants and their interpersonal relations:* A total of 50-70% residents perceived the roles of consultants and supervisors in their specialties to be positive whereas 45% residents thought that their supervisors are monitoring their training progress and 27% perceived not to be so. Perhaps, the reason was that traditionally Armed Forces hospitals have been offering restrictive approach of participation in learning by enabling the learners to become partial experts tailored to organizational needs only.Adopting expansive approach for residents, their role needs to be recognized explicitly and not ambivalently[22]. Majority of residents thought that the consultants took time to explain when asked for, were available and happy to discuss patient care when required, treated them with respect and were positive role models overall. However, 23% thought that the role of specialty tutors and supervisors was negative. Their interpersonal relationships and difference in opinions did have negative bearings on patient management and work climate. To increase awareness of intrapersonal and interpersonal processes amongst staff, residents and faculty, use of transactional analysis (TA) tools may be an option. Resultant self-directed changes are known to help prevent negative workplace interactions. In addition, broad array of experiences that the faculty is expected to encounter in organizational culture like promotion, tenure, postings, time and space issues, also termed as "hidden curriculum", need to be addressed[23].

Our study also compared the perspective of educational climate by twenty-nine residents in "medical and allied" group with that of twenty-seven residents in "surgical and allied" disciplines with respect to each of eleven subscales. However, the perception in the two major specialty groups concerning each element of learning environment was not found to have any significant difference(p-value >0.05).

The study did distill existing issues in educational climate quantitatively. The main issue found was lack of regular and structured feedback. Other elements perceived to be weak included work adaptation to trainees level, role of specialty supervisor, tutor and consultants along with their coaching and assessment ability. Future qualitative exploration of these issues identified by our study, may help further to offer remedial steps in complex setting of postgraduate learning environment[24,25].

CONCLUSION

The study highlights an overall positive learning climate at Armed Forces Post Graduate Medical Institute, but finds an appalling need to provide regular structured feedback to residents during their training. To accomplish this end, periodic use of workplace based assessment tools, e.g. mini-CEX and DOPS is suggested.

Moreover, qualitative exploration of issues of concern underscored by this study is needed to advance residency educational climate further.

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CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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